Appendix E

FERC Wetland and Waterbody Construction and Mitigation Procedures

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WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES (PROCEDURES)

I. APPLICABILITY

A. These Procedures apply to all natural gas construction projects where they are imposed by the Commission or agreed to by project sponsors and shall be used for all wetlands and waterbodies affected by a project. Deviations that involve measures different from those contained in these Procedures will only be permitted as certificated by the Commission or by written approval of the Director of the Office of Pipeline Regulation (OPR), or his/her designee, unless specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land. The project sponsor shall file other agency requirements with the Secretary of the Commission (Secretary) before construction.

B. The intent of these Procedures is to minimize the extent and duration of project-related disturbance of wetlands and waterbodies. Any project-related ground disturbance (including erosion) inside or outside of the certificated areas is subject to compliance with all applicable survey and mitigation requirements.

C. DEFINITIONS

1. "waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:

   a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of construction;

   b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of construction;

   c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of construction.

2. "wetland" includes any area that satisfies the requirements of the current Federal methodology for identifying and delineating wetlands.

PRECONSTRUCTION FILING

A. Project sponsors shall file with the Secretary before construction the hydrostatic testing information specified in section VII.B.3. and a wetland delineation report as described in section VI.B.1., if applicable.

B. Project sponsors shall file with the Secretary site-specific construction plans prepared to comply with sections V.B.2.c., V.B.6.c., V.B.9.b., VI.B.4., and VI.C.1.b. for review and written approval by the Director of OPR before construction.

C. Before construction begins on a project that will disturb more than 5 acres of land, the project sponsor shall file with the Secretary a copy of its Stormwater Pollution Prevention Plan prepared for compliance with the U.S. Environmental Protection Agency's (EPA) National Stormwater Program General Permit requirements. This plan must be available in the field on each construction spread and shall include a Spill Prevention, Containment, and Countermeasure Plan (see section IV.A.).

D. The project sponsor shall prepare a schedule identifying when trenching or blasting would occur within each waterbody greater than 10 feet wide, or within any coldwater fishery. The project sponsor shall file the schedule with the Secretary within 30 days of the acceptance of the certificate and revise it as necessary to provide at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice.

ENVIRONMENTAL INSPECTORS

A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the project area is required for each construction spread.

B. The Environmental Inspector's responsibilities are outlined in the Upland Erosion Control, Revegetation, and Maintenance Plan (**Plan**).

IV. PRECONSTRUCTION PLANNING

A. SPILL PREVENTION, CONTAINMENT, AND COUNTERMEASURE (SPCC) PLAN

Prepare a SPCC Plan that, at a minimum:

1. Identifies typical fuel, lubricants, and hazardous materials stored or used in the project area, and the location, quantity, and method of storage;

2. Describes the preventive and mitigative measures to avoid or minimize impacts of spills of fuel, lubricants, or hazardous materials, especially within any municipal watershed area or within 100 feet of any waterbody or wetland;

3. Requires fueling and lubricating to be done in areas designated for such purposes and specifies measures to avoid or minimize spills when construction equipment (such as pontoon-mounted backhoes and pumps) will be refueled in or within 100 feet of any waterbody or wetland;

4. Identifies emergency notification procedures in the event of a spill;

5. Requires each construction crew to have sufficient supplies of absorbent and barrier materials on-hand to allow the rapid containment and recovery of any spills;

6. Includes procedures for collection and disposal of waste generated during spill cleanup or equipment maintenance;

7. Includes procedures regarding excavation and disposal of any soil or materials contaminated by a spill; and

8. Identifies names and telephone numbers of all state agencies and individuals that will be contacted in the event of a spill.

B. AGENCY COORDINATION

Coordinate with the appropriate agencies as specified in sections V.A., VI.A., VI.D.4., VI.D.5.c., VI.D.7., and VII.A.

V. WATERBODY CROSSINGS

A. NOTIFICATION PROCEDURES AND PERMITS

1. Provide written notification to the U.S. Army Corps of Engineers (COE) of the proposed construction activities.

2. Provide written notification to authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in the waterbody.

3. Apply for state-issued waterbody crossing permits and obtain individual or generic section 401 water quality certification or waiver.

4. Notify state authorities that request such notification at least 48 hours before beginning trenching or blasting within the waterbody.

B. INSTALLATION

1. Time Window for Construction

Unless expressly permitted or further restricted by the appropriate state agency in writing on a site-specific basis, crossings must be constructed during the following time windows:

a. Coldwater Fisheries - June 1 through September 30; and

b. Coolwater and Warmwater Fisheries - June 1 through November 30.

2. Extra Work Areas

a. Access roads across a waterbody must use an equipment bridge as specified in section V.B.5.

b. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from waterbody boundaries, where topographic conditions permit. If topographic conditions do not permit a 50-foot setback, these areas must be located at least 10 feet from the water's edge.

c. The project sponsor shall file with the Secretary for review and written approval by the Director of OPR before construction site-specific construction plans for those extra work areas with a less than 50-foot setback from waterbody boundaries and a site-specific explanation of the conditions that will not permit a 50-foot setback.

d. Limit clearing of vegetation between extra work areas and the edge of the waterbody to the certificated construction right-of-way.

e. Limit the size of extra work areas to the minimum needed to construct the waterbody crossing.

3. General Crossing Procedures

a. Comply with section 404 nationwide permit program terms and conditions (33 CFR Part 330).

b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.

c. If the pipeline parallels a waterbody, attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody and the right-of-way except at the crossing location.

d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.

e. Maintain adequate flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.

f. Do not store hazardous materials, chemicals, fuels, lubricating oils, or perform concrete coating activities within 100 feet of any waterbody or within any designated municipal watershed area (except at locations designated for these purposes by an appropriate governmental authority).

g. Attempt to refuel all construction equipment at least 100 feet from any waterbody. If construction equipment must be refueled within 100 feet of a waterbody, follow the procedures outlined in the project-specific SPCC Plan. See section IV.A.

4 Spoil Pile Placement and Control

a. All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least 10 feet from the water's edge or in additional extra work areas as described in section V.B.2.b.

b. Use sediment barriers to prevent the flow of spoil into any waterbody.

5. Equipment Bridges

a. Only clearing equipment may cross waterbodies before installation of equipment bridges. Limit the number of such crossings of each waterbody to one per piece of equipment.

b. Construct equipment bridges using one of the following methods:

(1) equipment pads and culvert(s);
(2) clean rockfill and culvert(s); or
(3) flexi-float or portable bridges.

Do not use soil to construct or stabilize equipment bridges.

c. Design and maintain each equipment bridge to withstand and pass the highest flow that would occur while the bridge is in place.

d. Maintain equipment bridges to prevent soil from entering the waterbody.

e. Remove equipment bridges as soon as possible after permanent seeding unless the COE authorizes it as a permanent bridge.

f If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove equipment bridges as soon as possible after final cleanup.

6. Dam and Pump

a. The dam-and-pump method may be used without prior approval for crossings of minor waterbodies where fluming is not required by these Procedures.

b. Prior written approval from the Director of OPR is required to dam and pump where:

fluming is required by these Procedures; or
the waterbody is greater than 10 feet wide.

c. To request approval to use the dam-and-pump method, the project sponsor shall file with the Secretary a project-specific plan for review and written approval by the Director of OPR before construction. This plan must list all waterbodies where the dam-and-pump

method would be used and describe all measures that would be used to maintain downstream flows, including:

(1) number and capacity of active pumps;
(2) number and capacity of backup pumps;
(3) the types of dams to be used up- and downstream of the crossing;
how streambed scour would be prevented at the pump discharge; and
how the operation would be monitored if the crossing is prolonged beyond one normal construction day.

7. Crossings of Minor Waterbodies

a. For crossings of all state-designated fisheries, all construction equipment must cross the waterbody on an equipment bridge as specified in section V.B.5.

b. Equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification (for example, agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in section V.B.5.

c. For crossings of all coldwater fisheries, and all coolwater and warmwater fisheries considered significant by the state, route waterbody flow across the trench using a flume pipe, and install the pipeline using all of the following "dry-ditch" techniques:

(1 install flume pipe after blasting, but before trenching;
(2) use sand bag or sand bag and plastic sheeting diversion structure, or equivalent;
(3) properly align flume pipe;
(4) do not remove flume pipe during trenching, pipelaying, or backfilling activities; and

(5) remove all flume pipes and dams that are not also part of the equipment bridge after final cleanup but before permanent seeding.

d. For minor waterbody crossings not covered by section V.7.c., complete construction in the waterbody (not including blasting) within 24 hours. Limit use of equipment operating in the waterbody to that needed to construct the crossing.

8. Crossings of Intermediate Waterbodies

a. Limit use of equipment operating in the waterbody to that needed to construct the crossing.

b. All other construction equipment must cross on an equipment bridge as specified in section V.B.5.

c. Attempt to complete trenching and backfill work within the waterbody (not including blasting) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible.

9. Crossings of Major Waterbodies

a. All major waterbody crossings must be constructed in accordance with the measures contained in these Procedures to the maximum extent practicable.

b. The project sponsor shall develop and file with the Secretary detailed, site-specific construction procedures (including scaled drawings identifying all areas to be disturbed by construction) for each major waterbody crossing, as defined in section I.C.1.c. for review and written approval by the Director of OPR before construction. This requirement does not apply to offshore pipeline construction.

10. Temporary Erosion and Sediment Control

Install sediment barriers (as defined in section V.F.2.a. of the Plan) immediately after initial disturbance of the waterbody or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

a. Install sediment barriers across the entire construction right-of-way at all waterbody crossings.

b. Where waterbodies are adjacent to the construction right-of-way, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the right-of-way.

c. Use trench plugs at all non-flumed waterbody crossings to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody. Trench plugs must be of sufficient size to withstand upslope water pressure.

11. Trench Dewatering

Dewater trench in such a manner that no heavily silt-laden water flows into any waterbody.

C. RESTORATION

1. Use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries.

2. Stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing the crossing. For dry ditch crossings, complete

bank stabilization before returning flow to the waterbody channel.

3. Return all waterbody banks to preconstruction contours.

4. Application of riprap must comply with section 404 nationwide permit program terms and conditions (33 CFR Part 330).

5. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeded erosion control fabric.

6. Revegetate disturbed riparian areas with conservation grasses and legumes or native plant species, preferably woody species.

7. Remove all temporary sediment barriers when restoration of adjacent upland areas is successful as specified in section VIII.A.6. of the Plan.

8. For each waterbody crossed, install a permanent slope breaker and a trench breaker at the base of slopes near the waterbody. Locate the trench breaker immediately upslope of the slope breaker.

9. Sections V.C.2. through V.C.7. above also apply to any streams mapped (as perennial or intermittent) on U.S. Geological Survey 7.5-minute topographic quadrangles but not flowing at the time of construction.

D. POST-CONSTRUCTION MAINTENANCE

1. Limit vegetation maintenance adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire right-of-way. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in a herbaceous state. In addition, trees that are located within 15 feet of the pipeline that

are greater than 15 feet in height may be cut and removed from the right-of-way.

2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as specified by the appropriate land management or state agency.

VI. WETLAND CROSSINGS

A. NOTIFICATION PROCEDURES AND PERMITS

1. Provide written notification to the COE concerning the proposed construction activities.

2. Apply for state-issued wetland crossing permit(s) and obtain individual or generic section 401 water quality certification or waiver.

B. GENERAL

1. The project sponsor shall conduct a wetland delineation using the current Federal methodology and file a wetland delineation report with the Secretary before construction. This report shall identify:

   a. by milepost all federally delineated wetlands that would be affected;

   b. the National Wetlands Inventory (NWI) classification for each wetland;

   c. the crossing length of each wetland in feet; and

   d. the area of permanent and temporary disturbance that would occur in each NWI classification type.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction

right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.

3. Limit the width of the construction right-of-way to 75 feet or less.

4. Implement the provisions of sections V. and VI. in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all provisions of sections V. and VI. cannot be met, the project sponsor must file with the Secretary a site-specific crossing plan for review and written approval by the Director of OPR before construction. This crossing plan shall address at a minimum:

   a. spoil control;

   b. equipment bridges;

   c. restoration of waterbody banks and wetland hydrology;

   d. timing of the waterbody crossing;

   e method of crossing; and

   f. size and location of all extra work areas.

5. Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

C. INSTALLATION

1. Extra Work Areas and Access Roads

   a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, where topographic conditions permit. If

topographic conditions do not permit a 50-foot setback, these areas must be located at least 10 feet from the wetland's edge.

b. The project sponsor shall file with the Secretary for review and written approval by the Director of OPR before construction site-specific construction plans for those extra work areas with a less than 50-foot setback from wetland boundaries and a site-specific explanation of the conditions that will not permit a 50-foot setback.

c. Limit clearing of vegetation between extra work areas and the edge of the wetland to the certificated construction right-of-way.

d. Limit the size of extra work areas to the minimum needed to construct the wetland crossing.

e. The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modification and no impact on the wetland.

2. Crossing Procedures

a. Comply with section 404 nationwide permit program terms and conditions (33 CFR Part 330).

b. Assemble the pipeline in an upland area and use "push-pull" or "float" techniques to place pipe in trench where water and other site conditions allow.

c. Minimize the duration of construction-related disturbance within wetlands.

d. Limit construction equipment operating in wetland areas to that needed to clear the right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the right-of-way. All other

construction equipment shall use access roads located in upland areas to the maximum extent practicable. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the right-of-way.

e. Cut vegetation off at ground level, leaving existing root systems in place, and remove it from the wetland for disposal.

f. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the right-of-way in wetlands unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require removal of tree stumps from under the working side of the right-of-way.

g. Segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water or saturated soils are present. After backfilling is complete, restore the segregated topsoil to its original location.

h. Do not store hazardous materials, chemicals, fuels, lubricating oils, or perform concrete coating activities in a wetland, or within 100 feet of any wetland boundary.

i. Attempt to refuel all construction equipment in an upland area at least 100 feet from a wetland boundary. If construction equipment must be refueled in a wetland or within 100 feet of any wetland boundary, follow the procedures outlined in the project-specific SPCC Plan. See section IV.A.

j. Do not use rock (except as allowed by item k. below), soil imported from outside the wetland, tree stumps, or brush riprap to stabilize the right-of-way.

k. If standing water or saturated soils are present, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or geotextile fabric overlain with gravel. Geotextile fabric used for this purpose must be strong enough to allow removal of all gravel and fabric from the wetland.

l. Do not cut trees outside of the construction right-of-way to obtain timber for riprap or equipment mats.

m. Attempt to use no more than two layers of timber riprap to stabilize the right-of-way.

n. Remove all timber riprap, prefabricated equipment mats, geotextile fabric, and overlying gravel upon completion of construction.

3. Temporary Sediment Control

Install sediment barriers (as defined in section V.F.2.a. of the Plan) immediately after initial disturbance of the wetland or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in section VI.3.c., maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

a. Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings, as necessary to prevent sediment flow into the wetland.

b Where wetlands are adjacent to the construction right-of-way, install sediment barriers along the edge of the construction

right-of-way as necessary to prevent sediment flow into the wetland.

c. Install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the right-of-way. Remove these sediment barriers during right-of-way cleanup.

4. Trench Dewatering

Dewater trench in such a manner that no heavily silt-laden water flows into any wetland or waterbody.

D. RESTORATION

1. Where the pipeline trench may drain a wetland, construct trench breakers and/or seal the trench bottom as necessary to maintain the original wetland hydrology.

2. For each wetland crossed, install a permanent slope breaker and a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Locate the trench breaker immediately upslope of the slope breaker.

3. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate land management or state agency.

4. Consult with the appropriate land management or state agency and develop plans for active revegetation of wetlands affected by construction. The revegetation plans should include specifications for the planting of native wetland species. Provide these plans to the FERC staff upon request. In the absence of detailed revegetation plans or until the appropriate seeding season for permanent wetland vegetation, temporarily revegetate the right-of-way with annual ryegrass at a rate of 40 pounds/acre, unless standing water is present.

5. For all forested wetlands affected:

a. plant native trees to ultimately restore the temporary right-of-way and the non-maintained portion of the permanent right-of-way to its preconstruction state;

b. plant native shrub and herbaceous species to revegetate the 30-foot-wide portion of the permanent right-of-way selectively maintained as described in section VI.E.1.; and

c. consult with the U.S. Fish and Wildlife Service, the EPA, the COE, and the appropriate state agency to determine the density for planting the native trees and shrubs.

6. Ensure that all disturbed areas permanently revegetate with native wetland herbaceous and/or woody plant species.

7 Develop specific procedures in coordination with the appropriate land management or state agency, where necessary, to prevent the invasion or spread of undesirable exotic vegetation (such as purple loosestrife and phragmites).

8. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after upland revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section VIII.A.6. of the Plan.

E. POST-CONSTRUCTION MAINTENANCE

1. Do not conduct vegetation maintenance over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in a herbaceous state. In addition, trees within 15 feet of the pipeline that are greater than 15 feet in height may be selectively cut and removed from the right-of-way.

2. Do not use herbicides or pesticides in or within 100 feet of a wetland, except as specified by the

appropriate land management agency or state agency.

3. Monitor the success of wetland revegetation annually for the first 3 to 5 years after construction. Revegetation should be considered successful if the cover of native herbaceous and/or woody species is at least 80 percent of the total area, and the diversity of native species is at least 50 percent of the diversity originally found in the wetland. If revegetation is not successful at the end of 3 years, develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate the wetland with native wetland herbaceous and woody plant species. Continue revegetation efforts until wetland revegetation is successful.

VII. HYDROSTATIC TESTING

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply for state-issued withdrawal permits, as required.

2. Apply for National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, as required.

3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

B. GENERAL

1. Perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.

2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetlands, address the operation and refueling of these pumps in the SPCC Plan prepared as described in section IV.A.

3. The project sponsor shall file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location.

C. INTAKE SOURCE AND RATE

1. Screen the intake hose to prevent entrainment of fish.

2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species or waterbodies designated as public water supplies, unless appropriate Federal, state, and/or local permitting agencies grant written permission.

3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.

4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

D. DISCHARGE LOCATION, METHOD, AND RATE

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow.

2. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, state, and local permitting agencies grant written permission.

3. Provide a copy of the results of sampling conducted in accordance with NPDES or state-issued

discharge permit requirements to the Commission's environmental staff upon request.